EKUTSKAIA, S. Z. [illegible]

"Thermophilic Proteolytic Bacteria II. The Action of Viscous Media on the Proteolytic Activity of Bacteria"

SOURCE: Mikrobiol, 15, No 1, 1946

[redacted] Inst Microbiology, Acad Sci USSR, Moscow

"Thermophilic Proteolytic Bacteria.III. Distribution and Methods of Isolation"

SOURCE: Mikrobiol, 15, No 2, 1946

BROTSKAYA, S. Z.

PA 16T18

USSR/Medicine - Bacteria - Morphology Mar 1947
Medicine - Bacteria - Mycoides

"Thermophilic Proteolytic Bacteria: IV, Morphology and Physiology," S. Z. Brotskaya, Institute of Microbiology of the Academy of Sciences, 8 pp

"Mikrobiologiya" Vol XVI, No 3

The author isolated and identified seven strains of thermophilic proteolytic bacteria, isolated and investigated a thermophilic variant of Bac mycoides, and found that five out of seven of the isolated strains were variants of corresponding mesophile microorganisms.

16T18

BROTSKAYA, S.Z.

Proteolytic activity of Aspergillus niger, wrinkled strain. S. Z. Brotskaya (Inst. Microbiol., Acad. Sci. U.S.S.R., Moscow). *Mikrobiologiya* 23, 153–8(1954).—Fermentation activity of *A. niger* cultures was highest on wheat bran ext. The wrinkled-colony strain was twice as active as the smooth strain, both in surface and deep culture tests, not only in amylolytic but also in proteolytic activity. A wrinkled colony culture gave the same gelatin-fermenting effect in 25 sec. as a smooth culture in 69 sec., though the dry wt. of the cultures was nearly the same (1.3805 and 1.4175 g.).
Julian F. Smith

Obtaining active fungus strains with high proteolytic activity from Aspergillus species. S. Z. Brotskaya (Inst. Microbiol., Acad. Sci. U.S.S.R., Moscow). *Mikrobiologiya* 25, 3-11(1956).—Proteolytic activity was tested in 50 cultures from about 2 dozen *Aspergillus* species, some wild and some from the culture museum; 10 wild cultures were more active than the cultured *A. oryzae*. By ultraviolet irradiation and selective culturing *A. nidulans* and *A. repens* changed from smooth to wrinkled forms with enhanced proteolytic activity. An enzyme prepn. from the wrinkled strain of *A. nidulans* was twice as active as the corresponding *A. oryzae* prepn. Semiworks trials indicate that this prepn. can be used successfully in processing hides for leather. Julian F. Smith

USSR / General Division, Congresses, Conventions, Conferences A-4

Abs Jour: Ref Zhur-Biologiia, No 5, 1958, 18879

Author : Brotskaia S. Z.

Inst : Not given

Title : The Scientific Conference in the Microbiology Institute of the Academy of Sciences USSR (16 May 1956)

Orig Pub: Mikrobiologiia, 1956, 25, No 5, 641

Abstract: At the conference which took place on 16 May 1956, these reports were heard: "Virus and Non-Virus Protein Inclusions in the Plant Cell" by M. I. Goldin, "The Role of Microorganisms in Nourishing Plants with Phosphorus" by V. V. Kotelev.

Card 1/1

BROTSKAYA, S.Z.

Morphology of Aspergillus nidulans variants produced by ultraviolet irradiation [with summary in English]. Mikrobiologiia 27 no.1:46-52 Ja-F '58. (MIRA 11:4)

1. Institut mikrobiologii AN SSSR, Moskva.
(ASPERGILLUS, eff. of radiations on ultraviolet induction of Aspergillus nidulans variants, morphol. (Rus)
(ULTRAVIOLET RAYS, eff. induction of variants in Aspergillus nidulans variants, morphol. (Rus)

BROTSKAYA, S.Z.

Effect of various doses of ultraviolet radiation on the production of variants of Asp. nidulans synthetizing active proteases. Mikrobiologiia 29 no.3:358-362 My-Je '60. (MIRA 13:7)

1. Institut mikrobiologii AN SSSR.
(ASPERGILLUS) (PROTEASES)
(ULTRAVIOLET RAYS—PHYSIOLOGICAL EFFECT)

BROTSKAYA, S.Z.

Effect of various doses of ultraviolet radiation in obtaining variants of Aspergillus producing active proteases. Trudy Inst. mikrobiol. no.10:120-128 '61. (MIRA 14:7)

1. Institut mikrobiologii AN SSSR.
(ASPERGILLUS) (ULTRAVIOLET RAYS--PHYSIOLOGICAL EFFECT)
(PROTEASES)

LOGINOVA, L.G.; MROTSKAYA, S.Z.

"Use of enzymes in the manufacture of leather" by V.G. Babakin. Mikrobiologiia 33 no.2:372-373 Mr-Ap '64. (MIRA 17:12)

IMSHENETSKIY, A.A., akademik; BROTSKAYA, S.Z.; KORSHUNOV, V.V.

Effect of the proteinase of molds on the blood thrombi. Dokl. AN SSSR 163 no.3:737-740 Jl '65. (MIRA 18:7)

1. Institut mikrobiologii AN SSSR.

BROTSKAYA, V.A.

Microbenthos of the White Sea littoral
Trudy Gidrobiol. obshch., 3, 1951

BROTSKAYA, V.A.

Deep-sea Harpacticoida. Report No.1: Revision of the genus Pontostratiotes Brady 1883. Zool.zhur. 38 no.12:1785-1789 D '59. (MIRA 13:5)

1. Chair of Invertebrate Zoology, Moscow State University.
(Copepoda)

BROTSKAYA, V.A.

Materials on the fauna of Harpacticoida (Crustacea, Copepoda) of the Velikaya Salma Strait and adjacent regions of the White Sea. Trudy Belomor.biol.sta.MGU 1:109-129 '62. (MIRA 16:1)

1. Kafedra zoologii bespozvonochnykh Moskovskogo gosudarstvennogo universiteta.

(White Sea--Copepoda)

BROTSKAYA, V.A. [deceased]

Survey of the family Cervinilidae (Crustacea, Copepoda). Zool. zhur. 42 no.12:1785-1803 '63 (MIRA 17:7)

1. Chair to Invertebrate Zoology, The State University of Moscow.

BROTSKAYA, V.A. [deceased]

Some data on the feeding habits of sturgeons in the central part of the Caspian Sea in 1935-1937. Trudy VNIRO no.54:49-66 '64.
(MIRA 18:2)

1. Azerbaydzhanskaya nauchno-issledovatel'skaya rybokhozyaystvennaya laboratoriya.

ACC NR: AT7000721 SOURCE CODE: UR/0000/66/000/000/0185/0198

AUTHOR: Abramov, Ye. I.; Brotskiy, A. N.

ORG: None

TITLE: Some special problems in designing a hydraulic damper with linear characteristics

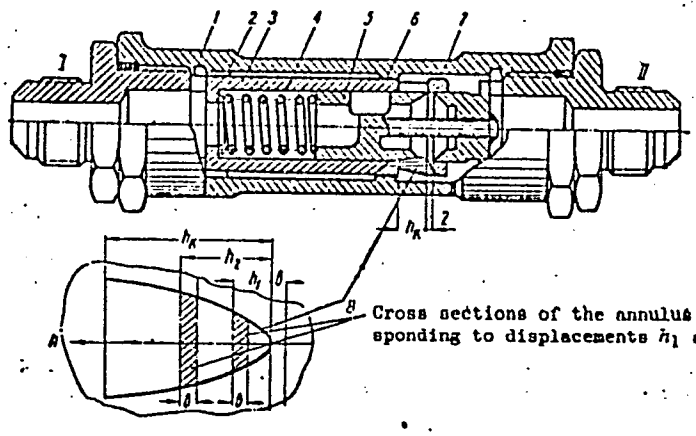
SOURCE: Ukraine. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya. Gidroprivod i gidropnevmoavtomatika (Hydraulic drive and hydropneumatic automation), no. 2. Kiev, Izd-vo Tekhnika, 1966, 185-198

TOPIC TAGS: hydraulic device, vibration damping, shock absorber

ABSTRACT: The authors consider design of a hydraulic damper which gives linear characteristics $\Delta p=f(Q)$ over a wide range of working fluid temperatures where Δp is the pressure drop in the throttling device and Q is the rate of flow through the throttling unit. It is shown that a damper with linear characteristics which maintains stability with a change in the temperature of the working fluid requires a throttling unit with a variable cross sectional area which changes with the rate of flow. A diagram for a device of this type is shown in the figure. Sleeve 3, slide 5 and spring 4 are mounted in valve housing 1. Band 2 in the housing is a guide and band 6 is a seal. On the lateral surface of the sleeve are slots shaped to give the

Card 1/3

ACC NR: AT7000721



1--housing; 2--guide band; 3--sleeve; 4--spring; 5--slide; 6--sealing band; 7--annular slot in the slide; 8--profiled slot in the sleeve; *b*--width of the annular slot; *h*--travel of throttling unit

Card 2/3

ACC NR: AT7000771

predetermined characteristics (linear characteristics require parabolic slots). The slide is made in two sections to give the annulus 7 with sharp edges to produce flow turbulence. When fluid is fed in direction I-II, the sleeve compresses the spring and moves with respect to the stationary slide, passing through the annulus whose length is limited by the lateral surfaces of the slots made in the sleeve. When the fluid flows in the opposite direction, the slide moves with respect to the stationary sleeve with completely analogous throttling action. It is shown that a change in the area of the throttling element according to a parabolic law gives linear damping characteristics. Various modifications of the device are given together with an example of design calculations. Orig. art. has: 11 figures, 1 table, 13 formulas.

SUB CODE: 13/ SUBM DATE: 29Jun66/ ORIG REF: 002

Card 3/3

BROTSKII, M. Z. A.A. Grigor'ev: Uspekhi sovetskoi fizicheskoi geografii za 30 let. L. S. Berg: Dostizheniia sovetskoi geografii, 1917-1947. (Voprosy geografii. Sbornik deviatyi, 1948). DLC: G23.V6
DA ICU MdBJ NN

SO: IC, Soviet Geography, Part I, 1951; Uncl.

[redacted] (Deceased)

Geography

See ILC

[redacted]

[illegible] [illegible], P.

Use of ion exchange [illegible] for determining boron in natural waters. Report No.2. Trudy [illegible] [illegible] no.[illegible] '62.

(MIRA 17:[illegible])

BROUCHEK, F. I.

Use of ion exchange resins for determining boron in natural water. Trudy GPI [Groz.] no.5:[illegible] '6[illegible].

(MIRA 17:10)

S/081/62/000/015/007/038
B168/B101

AUTHORS: Brouček, Oldřich, Ulrych, Miloš

TITLE: Induction device for flow monitoring

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 15, 1962, 146-147, abstract 15Ye12 (Elektrotechnik, v. 16, no. 12, 1961, 242 - 244)

TEXT: The problem of measuring the quantity of flowing gases and liquids is examined. All known and used methods are surveyed and a new measuring principle, based on variation of the inductance of the outer coil through variation in the position of the inner core, is described. [Abstracter's note: Complete translation.]

Card 1/1

S/263/62/000/006/003/015
I013/I213

26.2191

AUTHOR: Broucek, O.

TITLE: A flow indicator for fluids

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk.32. Izmeritel'naya tekhnika, no.6, 1962, 32, abstract 32.6.191P. (Czech. patent, class 42e, 23/05, no. 95717, June 15, 1960)

TEXT: The proposed arrangement is based on the induction method. In the lower part of a non-magnetic pipe, through which a fluid is flowing upwards from the bottom, a full ferromagnetic piston is fixed, open on one side. A spool is wrapped on the outside of the pipe and is connected to a relay. While the fluid is flowing, the piston is raised to the upper part of the pipe and the impedance of the spool is diminishing. When the flow of the fluids stops, the piston under the action of its own weight drops down, and the impedance sharply grows, affecting an appropriate relay. There

Card 1/2

S/263/62/000/006/003/015
I013/I213

A flow indicator...

are 5 figures.

[Abstracter's note: Complete translation.]

B

Card 2/2

Country : Czechoslovakia H-13
Category :

Abs. Jour. : 39411

Author : Broucek, P.
Institut. : Not given
Title : The Drying of Air

Orig. Pub. : Sklar a Keramik, 8, No 9, 274-276 (1958)

Abstract : The experience of Czech glassmaking factories has shown that the utilization of the compressed air from the compressors without preliminary drying leads to a rapid wear of the pneumatic apparatus as a result of the washing out of the grease and the rusting of the cylinder linings. A calculation of the quantity of moisture which must be removed from 1,000 m^3 of air at 1 atm and 25° after compression to 5 atm in order to obtain air having a moisture content and temperature matching the initial conditions has shown that the amount which must be removed is about 9 kg; this figure is higher in the

Card: 1/2

H-43

Country : Czechoslovakia
Category : H-13

Abs. Jour. : 39411

Author :
Institut. :
Title :

Orig Pub. :

Abstract : summer than in the winter. A cooler and water separator are required for the drying of the compressed air. A system for the drying of compressed air which has made possible considerable savings in

ERISTAVI, D.I.; BROUCHEK, F.I.; CHEYSHVILI, L.I.

Use of ion exchange resins for determining boron in natural water. Report No. 1. Trudy GPI [Gruz.] no.5:3-16 '62.
(MIRA 17:10)

ERISTAVI, D.I.; BROUCHEK, F.I.; DZHORBENADZE, G., red.

[Physicochemical study of Borzhomi mineral water] Fiziko-khimicheskoe issledovanie mineral'noi vody Borzhomi. Tbilisi, Sabc ota sakartvelo, 1964. 76 p. (MIRA 17:11)

1. Chlen-korrespondent AN Gruz.SSR (for Eristavi).

ERISTAVI, D.I.; BROUCHEK, F.I.

Method of ion exchange separation and concentration of boron in its determination in natural waters. Soob. AN Gruz. SSR 30 no.5:565-572 My '63. (MIRA 16:11)

1. Gruzinskiy politekhnicheskiy institut imeni Lenina, Tbilisi.
2. Chlen-korrespondent AN Gruzinskoy SSR (for Eristavi).

S/081/62/000/003/045/090
B156/B101

18.1260

AUTHOR: Brouchek, F. I.

TITLE: A tin-manganese alloy produced by electrolysis of molten salts

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 3, 1962, 368, abstract 3K153 (Tr. Gruz. politekhn. in-t, no. 4 (65), 1959, 87-100)

TEXT: Production of Mn-Sn alloys by electrolysis of liquid $MnCl_2$+KCl+$BaCl_2$ using a liquid metallic Sn (99.9%) cathode has been investigated. An electrolyte of the following percent composition is recommended for producing an alloy containing 25-45% Mn: $MnCl_2$ 30, KCl 55, $BaCl_2$ 15. The cathodic current yield is 90-96%. Temperature 480-1080°C. Increase from 0.3 to 1 a/cm^2 is accompanied by reduction of the cathodic current yield from 94.5 to 80.1%, the yield by power decreasing from 65 to 37.8%. The principles of a technological method for producing the Mn-Sn alloy are proposed. [Abstracter's note: Complete translation.]

Card 1/1

BROUCKOVA, V.
Surname (in caps); Given Names

Country: Czechoslovakia

Academic Degrees: /not given/

Affiliation: Chemical Institute (Chemische Anstalt), Director (Direktor): Prof. Dr. Dr. Sc. F. Santavy, of the Faculty of Medicine of Palacky University (Medizinische Fakultaet der Palacky Universitaet) Olomouc; Psychiatric Clinic, Director (Direktor): Prof. Dr. J. Hadlik, of the Faculty of Medicine of Purkyne University (Medizinische Fakultaet der Purkyne Universitaet), Brno; and the Psychiatric Clinic (Psychiatrische Klinik), Director (Direktor): Doz. Dr. O. Vymetal, of the Faculty of Medicine of Palacky University (Medizinische Fakultaet der Palacky Universitaet), Olomouc, Czechoslovakia.

Source: Berlin, Acta Biologica et Medica Germanica, Vol VII, No 1, 1961, pp 96-105.

Data: "The Glycoproteins of Spinal Fluid. VI. The Glycoproteins of Spinal Fluid in Mental Illness."

Authors: LANG, B.A.
BROUCKOVA, V.
BLATAK, F.

BROUCKOVA, Vlasta; Technicka spoluprace: Jarmila Sahankova.

Electrophoresis of blood proteins in psychoses treated by various phenothiazine derivatives. Preliminary communication. Cesk. psychiat. 55 no.5:328-333 O '59.

1. Psychiatricka klinika MU v Brne.
(PSYCHOSES blood)
(BLOOD PROTEINS)
(PHENOTHIAZINES ther.)

CZECHOSLOVAKIA

V. BROUCKOVA and J. SLAMA, Psychiatric Clinic and Chemical Institute of the Medical Faculty of J.E. Purkyne University, Brno.

"Urinary 3-Methoxy-4-Hydroxymandelic Acid in Psychotics After LSD-25."

Prague, Activitas Nervosa Superior, Vol 5, No 2, May 63; p 206.

Abstract : Changes of this catecholamine metabolite in the urine were determined after a single dose (240 to 360 mcg. s.c.) or prolonged treatment (50 to 225 mcg./day perorally for 9 to 24 days) of lysergic diethylamide in 19 psychiatric patients. Changes varied, generally in the direction of decrease and quite strikingly paralleling urinary creatinine trends.

1/1

BROŽKOVÁ, Z.; SLAMA, K.

3-Methoxy-4-hydroxymandelic acid in the urine in psychoses after LSD25. Activ. nerv. sup. (Praha) 6 no.3:276-283 '64.

1. Psychiatrická klinika lékařské fakulty University J.E. Purkyně v Brně a Chemický ústav lékařské fakulty University J.E. Purkyně v Brně.

BROUDE, B., kand. tekhn. nauk (Leningrad)

Airplane with disk-shaped wings. Grazhd. av. 19 no.11:28-29 N '62. (MIRA 16:1)

(Airplanes)

1. B. G. BROUDE.

2. USSR (600).

4. Aerodynamics

7. Demonstration of supersonic air currents by means of aero-and hydrodynamic analogy. Fiz. v. shkole no. 1. 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

SUBJECT USSR / PHYSICS CARD 1 / 4 PA - 1211
AUTHOR BROUDE, B.G.
TITLE Utilization of the Gas-Hydraulic Analogy for Purposes of Gas Dynamics.
PERIODICAL Žurn. techn. fis, 26, 1579-1594 (1956)
Publ. 7 / 1956 reviewed 8 / 1956

Tests carried out with transonic and supersonic flows of gas are rendered difficult by their complicated nature and high costs. A more economical and easier method is that of utilizing gas-hydraulic analogy (GAGA) which was for the first time investigated and analyzed by Žukowsky. The gas density ϱ corresponds to the height of the level of the liquid h. In the numerous works dealing with GAGA the quantitative character was, in most cases, not taken into account as no process serving this purpose was known. This basic question forms the subject of the present investigation. In order to solve the problem of completely determining the aerodynamic characteristics of the wing profiles two stages are necessary:
1.) Determination in the ideal compressible gas in consideration of the influence exercised by viscosity, surface stress, and the inertia of the water current of the model.
2.) Determination of the actual profile characteristics in a real gas flow in consideration of the influence exercised by water viscosity on the model itself (in the boundary layer) and of its relation to the analogous influence exercised by the viscosity of a real gas.

The present work only solves the task of the first basic stage. The application of the theory of similarity upon GAGA showed that the main condition of analogy is the equality of the analogous criteria of similarity, namely, that the number $M = \frac{v}{a}$ be equal to the number $Fr = \frac{v^i}{\sqrt{gn}}$. (The latter expression is the number M of the model flow).
An essential criterion of similarity for GAGA is the thermodynamic criterion - the exponent of the adiabate $k = \frac{c_p}{c_v}$. The influence exercised by the difference between the k of the air and the k of the "hydraulic gas" was analyzed. One of the most essential advantages of GAGA was ascertained, i.e. that it is easier to find the number M in a flow of water (by means of GAGA) than in a flow of gas.
The graphical solutions of the relative pressure $\tilde{p} = \frac{p}{p_o}$ and of the coefficient $\bar{p}$ in dependence on the number M and the local afflux angle of β showed full qualitative analogy of the corresponding curves in the case of different k as well as a certain quantitative difference. Therefore a method was worked out for the purpose of converting from k=2 to k=1,4, as well as from $\bar{p}$ to $\tilde{p}$. The qualitative side of the gas-hydraulic analogy was utilized on the occasion of the production of the GAGA table-apparatus,

a combination of a miniature hydro channel with a projection lamp. Tests were carried out with duraluminium models of little flat plates and wing profiles with chords of between 50 and 250 mm. It was proved to be possible to utilize GAGA for the purpose of obtaining quantitative results (when examining wing profiles). The most suitable method was that of determining the pressure distribution on the surface of wing profiles. The necessary measuring of the depth of water was carried out by the following two methods: by means of a needle probe and by washing off the paint. The second method offers the following essential advantages: rapidity of tests, high accuracy, easy measuring, low consumption of water, the possibility of conserving test results for an indefinite period of time etc. Worked out in detail the method is characterized as follows: 1.) By washing off the paint the water level on the surface of the model h_{paint} is determined. 2.) In order to obtain the effective water

BROUDE, B. G.

3
1-4E4b

USE OF THE GAS-HYDRAULIC ANALOG FOR THE STUDY OF GAS DYNAMICS B. G. Broude

off method. From this, other aerodynamic characteristics are calculated, taking into account the effect of viscosity, surface tension, and inertia of the water stream.

DE
MT

BROUDE, B.

84-11-32/36

AUTHOR: Broude, B., Candidate of Technical Sciences (Leningrad)

TITLE: Aeroflot Needs Computing Machines (Aeroflotu nuzhny schetnyye vychislitel'nyye mashiny)

PERIODICAL: Grazhdanskaya aviatsiya, 1957, Nr 11, p. 35 (USSR)

ABSTRACT: The author points out that the operation of modern near- and supersonic aircraft requires electronic computers, airborne and ground, to make possible extensive computations within a very limited period of time. The developments in the USA, such as application of electronic computers in scheduling of flights, planning of airport or maintenance shop operations, equipment utilization etc., are referred to. The author urges the State Scientific Research Institute of the GVF to tackle the problem, and recommends to start with flight simulator trainers, autopilots, automatic traffic controllers for major airports, and similar applications.

AVAILABLE: Library of Congress

Card 1/1

BROUDE, B.M. (Moscow)

"Boundary surface properties in linear and nonlinear eigenvalue problems"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964

BROUDE, B. M.

The stability of horizontal walls in metal structures Moskva, Gos. izd-vo stroit. lit-ry, 1940. 111 p. (50-40626

TH845.B75

BROUDE, B. M.

Predel'nyye sostoyaniya stal'nykh balok (Limit states of steel beams) Moskva, Gos, Izd-vo Literatury po Storitel'stvu i Arkhitekture, 1953. 215 p. tables. "Ispol'zovannaya literatura": p. 215-216

SO: N/5
615.14
.B8

BROUDE, B.M., doktor tekhnicheskikh nauk (Moscow)

Rigidity and vibrations in an elastic fixed-end rod. Issledovaniia po teorii sooruzhenii. Sbornik statei. no.6:55-59 '54. (MLRA 7:11)
(Structures, Theory of) (Strains and stresses) (Elastic plates and shells)

STRELETSKIY, Nikolay Stanislavovich; ZELYATROV, V.N., nauchnyy red.; BROUDE, B.M., doktor tekhn.nauk; BORODINA, I.S., red.izd-va; GILENSON, P.G., tekhn.red.

[Materials for a course in steel construction elements] Materialy k kursu stal'nykh konstruktsii. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam. No.2., pt.1. [Performance of compressed columns] Rabota szhatykh stoek. 1959. 281 p. (MIRA 12:10)

(Columns, Iron and steel)

BROUDE, B.M. (Moskva)

Bending shape of a rod loaded at both ends. Stroi.mekh. i rasch.soor. 1 no.3:34-35 '59. (MIRA 12:8)
(Elastic rods and wires)

BROUDE, B.M. (Moskva)

A certain type of bifurcation of equilibrium forms. Stroi. mekh.i rasch.soor.1 no.5:14-15 '59. (MIRA 13:1)
(Elastic rods and wires)

BROUDE, B.M., doktor tekhn. nauk (Moskva)

Linearization of equations of the stability of equilibrium of eccentrically compressed rods. Issl. po teor. sooruzh. no.8:205-223 '59. (MIRA 12:12)

(Elastic rods and wires)

report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb '60.

35. N. M. Borodachev (Kuibyshev): On the solution of the dynamic contact problem for a half-space under conditions of axial symmetry.

36. J. Brilla (Bratislava). Anisotropic plates with discontinuous supports.

37. B. M. Broude (Moscow): On the essential non-linearity of certain problems on column stability.

38. K. G. Buslov (Kiev), E. V. Saranyan (Moscow): On the determination of safety factors under alternating random loads.

39. A. V. Burlakov (Kharkov): An experimental investigation of creep of turbine diaphragm models.

40. K. F. Burmistrov (Saratov): On the stability of constructionally anisotropic circular ring plates.

41. St. Balan, V. Petcu, S. Rautu (Bucharest): The field of application of chronoplasticity.

42. D. V. Vainberg (Kiev): The state of stress of lamellar systems of regular configuration.

43. V. V. Vainshtok (Moscow): Thixotropic properties of lubricants as basis of their rheological characteristics.

44. G. A. Van-Fo-Fi, G. N. Savin (Kiev): Application of Mathieu functions to the investigation of shells.

45. P. M. Varvak (Kiev): Determination of stresses and deformations in massive bodies.

46. B. V. Vedeneev (Gorkii): The flow of bitumens and filled bitumens in pipes.

47. I. N. Vekua, N. I. Muskhelishvili (Tbilisi): Applications of analytic functions in the theory of elasticity.

48. L. Ya. Flore (Tbilisi), V. V. Pinadzhian (Erevan): Experimental investigation of the behavior of eccentrically compressed short columns for long loading times.

49. G. V. Vinogradov (Moscow), A. A. Konstantinov (Kazan), V. P. Pavlov (Moscow): Investigation of soft plastic bodies under combined states of stress.

50. G. V. Vinogradov, V. P. Pavlov (Moscow): Basic peculiarities of the mechanical properties of plastic lubricants.

51. A. I. Flocker (Leningrad): Fundamentals of the linear theory of visco-elastic impact.

52. L. I. Vinokurov (Kharkov): The solution of dynamic contact problems for foundations using a simplified model.

53. B. F. Vlasov (Moscow): On the equilibrium equations of thick elastic plates.

54. K. F. Voitkovskii (Yakutsk): The creep of ice and frozen soils under combined stresses.

55. M. P. Volarovich, G. Ya. Vorobyev, E. F. Kovalevskii, G. L. Bushman (Moscow): Studies of viscoelastic properties of porous bodies (e.g. peat) by the ultrasonic pulse method.

56. M. P. Volarovich (Moscow), A. Kh. Kim (Minsk): The plane flow of a visco-plastic medium between two planes forming an acute angle.

57. M. P. Volarovich, K. N. Opekin (Moscow): Kinematics and dynamics of the flow of visco-plastic dispersed media past bodies of different shapes.

58. A. N. Volkov (Moscow): On the analysis of a short closed cylindrical shell.

59. S. D. Volkov, N. A. Klinskikh (Sverdlovsk): On the distribution of elastic constants in quasi-isotropic polycrystalline media.

60. I. I. Vorovich (Rostov-na-Donu): A statistical method in the stability theory of shells.

61. I. I. Vorovich (Rostov-na-Donu), A. S. Kosmodamianskii (Saratov): On stress concentration in a plane with an infinite number of holes.

62. S. P. Viazmenskii (Leningrad): Foundations of the general engineering theory of elastic beams.

63. S. S. Vialov (Moscow): The laws of deformation of ice.

64. S. S. Vialov (Moscow): The laws of motion of ice crusts and the theory of visco-plastic flow based on research in the Antarctic.

65. M. D. Galileev (Leningrad): A method of obtaining polynomial stress and displacement functions.

66. K. Z. Galimov (Kazan): A contribution to the theory of the finite deformations of thin shells.

67. M. P. Galin (Moscow): The propagation of elastic-plastic bending and shear waves in the axisymmetrical deformations of shells.

BALDIN, V.A.; TARANOVSKIY, S.V., prof., doktor tekhn.nauk; KHOKHARIN, A.Kh., kand.tekhn.nauk; BROUDE, B.M., doktor tekhn.nauk; CHUVIKIN, G.M., kand.tekhn.nauk; GURARI, M.D., inzh. [deceased]; LOKSHIN, Ye.E., kand.tekhn.nauk; KOVAL'CHUK, M.F., inzh., red.; STRASHNYKH, V.P., red.izd-va; RYAZANOV, P.Ye., tekhn.red.

[Technical specifications SN 113-60 for designing elements made of aluminum alloys] Tekhnicheskie usloviia proektirovaniia konstruktsii iz aliuminievykh splavov, SN 113-60. Moskva, Gos. izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1960. 86 p. (MIRA 14:6)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva. 2. TSentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktsiy Akademii stroitel'stva i arkhitektury SSSR (for Taranovskiy, Khokharin, Broude, Chuvikin). 3. Chlen-korrespondent Akademii stroitel'stva i arkhitektury SSSR (for Baldin). 4. Gosudarstvennyy proyektnyy institut Proyektstal'konstruktsiya Glavstroyproyekta pri Gosstroye SSSR (for Gurari, Lokshin).
(Aluminum alloys)

BROUDE, B.M. (Moskva)

Theory of thin-walled rods with an open profile. Stroi. mekh. i rasch. soor. 2 no.5:6-11 '60. (MIRA 13:9)
(Elastic rods and wires)

BROUDE, B.M., doktor tekhn.nauk

Stability of compressed bulb bar flanges. Trudy TSNIISK no.4:35-43 '61. (MIRA 15:2)
(Steel bars--Testing)
(Deformations(Mechanics))

BROUDE, B.M. (Moskva)

Stability of plates. Stroi. mekh. i rasch. soor. 3 no.6:35-46 '61. (MIRA 15:4)
(Elastic plates and shells)

BROUDE, B.M., doktor tekhn.nauk

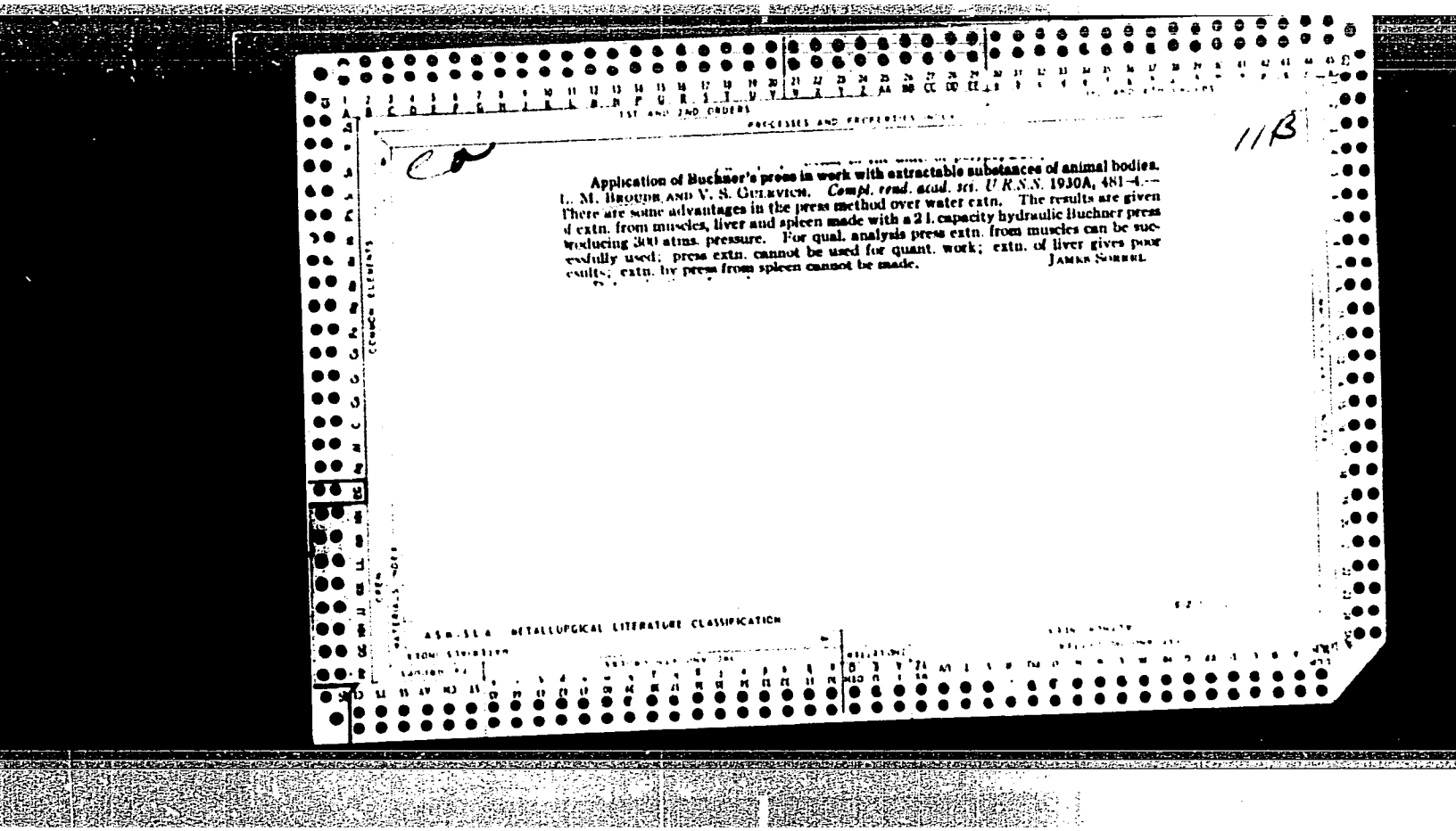
Practical methods of designing thin shells for stability.
Trudy TSNIISK no.13:38-69 '62. (MIRA 15:11)
(Elastic plates and shells)

BROUDE, B.M., doktor tekhn.nauk; BORISOV, Ye.V., inzh.

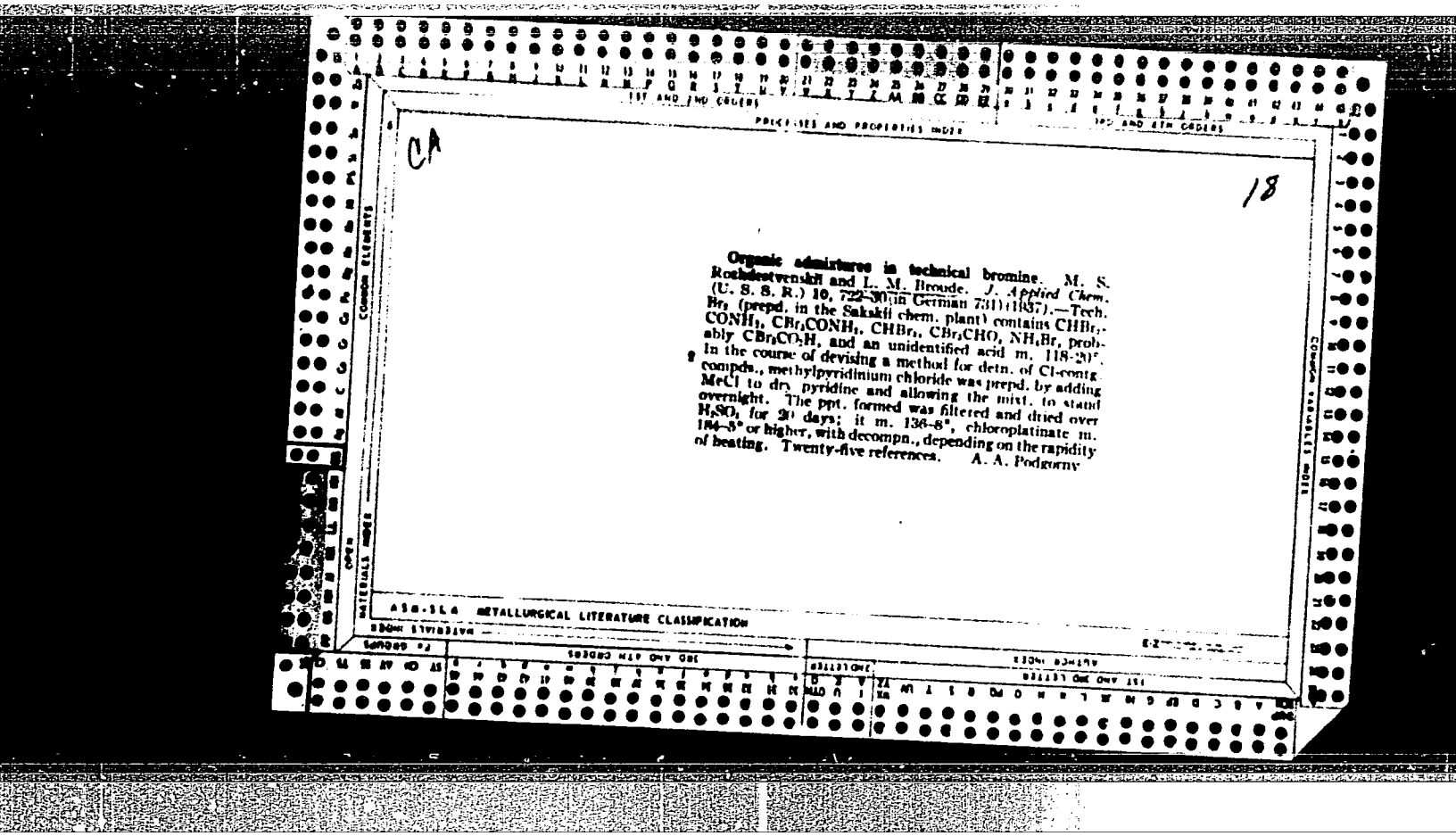
The stability of elements of a compressed channel rod.
Trudy TSNIISK no.13:160-172 '62. (MIRA 15:11)
(Elastic rods and wires)

BROUDE, B.M. (Moskva)

Stability of an infinite cylindrical shell with an initial curvature subjected to an external uniform pressure. Izv.AN SSSR. Mekh. i mashinostr. no.4:76-78 Jl-Ag '63. (MIRA 17:4)

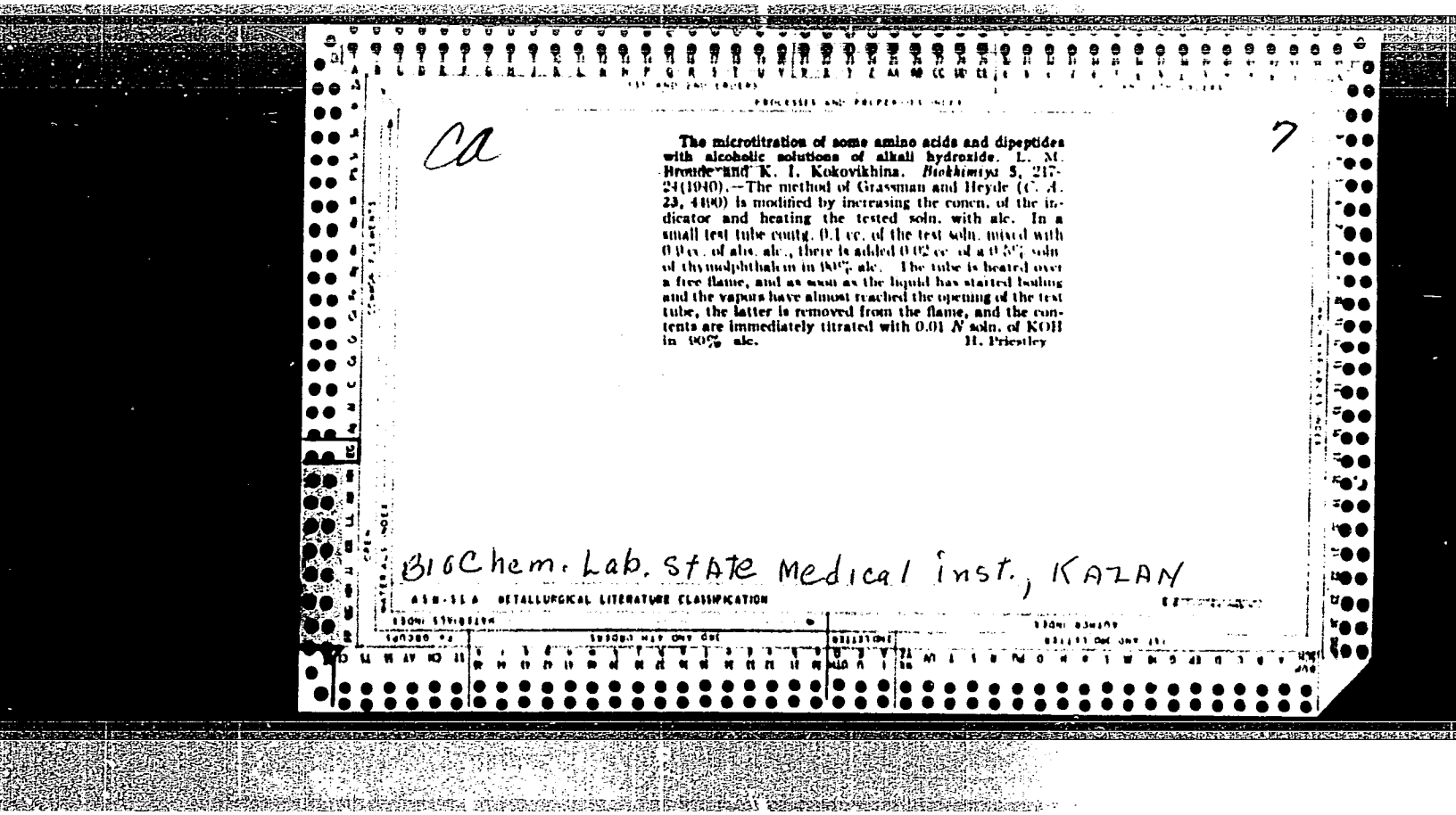


Application of Buchner's press in work with extractable substances of animal bodies. L. M. Broude and V. S. Gulevich. *Compt. rend. acad. sci. U.R.S.S.* 1930A, 481–4.—There are some advantages in the press method over water extn. The results are given of extn. from muscles, liver and spleen made with a 2 l. capacity hydraulic Buchner press producing 300 atms. pressure. For qual. analysis press extn. from muscles can be successfully used; press extn. cannot be used for quant. work; extn. of liver gives poor results; extn. by press from spleen cannot be made. James Sorrel


CA

18

Organic admixtures in technical bromine. M. S. Rozhdestvenskii and L. M. Broude. *J. Applied Chem.* (U. S. S. R.) **10**, 722–30 (in German 731) (1937).—Tech. Br_2 (prepd. in the Sakaki chem. plant) contains $CHBr_3$, $CONH_2$, CBr_3CONH_2, $CHBr_2$, CBr_2CHO, NH_4Br, probably CBr_3CO_2H, and an unidentified acid m. 118–20°. In the course of devising a method for detn. of Cl-contg. compds., methylpyridinium chloride was prepd. by adding MeCl to dry pyridine and allowing the mixt. to stand overnight. The ppt. formed was filtered and dried over H_2SO_4 for 20 days; it m. 136–8°, chloroplatinate m. 184–5° or higher, with decompn., depending on the rapidity of heating. Twenty-five references. A. A. Podgorny



CA

7

The microtitration of some amino acids and dipeptides with alcoholic solutions of alkali hydroxide. L. M. Broude and K. I. Kokovikhina. *Biokhimiya* 5, 217-24(1940).—The method of Grassman and Heyde (C. A. 23, 4480) is modified by increasing the concn. of the indicator and heating the tested soln. with alc. In a small test tube contg. 0.1 cc. of the test soln. mixed with 0.9 cc. of abs. alc., there is added 0.02 cc. of a 0.5% soln. of thymolphthalein in 80% alc. The tube is heated over a free flame, and as soon as the liquid has started boiling and the vapors have almost reached the opening of the test tube, the latter is removed from the flame, and the contents are immediately titrated with 0.01 *N* soln. of KOH in 90% alc. H. Priestley

BioChem. Lab. State Medical Inst., KAZAN

The chemical nature and some properties of the adrenocorticotropic hormone of cattle hypophyses. I. M. Broude, T. S. Sakhatskaya, and N. G. Serebrenn[illegible] Inst. Expt. Endocrinol., Moscow [illegible] (1954).—Two prepns. of adrenocorticotropic hormone ("ACTH") were used, one was obtained [illegible] modified methods of Li, *et al.* (*C.A.* 41, 3104*f*), the other was a [illegible] com. Moscow prepn. By paper chromatography, CO_2H pptn., and electrodialysis it was [illegible] prepns. of ACTH obtained from the [illegible] differ and consist partly of a protein and partly [illegible]. By electrodialysis there was isolated from the lyophilized prepn. a fraction 10 times as active as the original prepn. Paper-chromatographic distribution indicates that this fraction is identical with the most mobile of the 3 fractions into which the original ACTH prepn. can be sepd. chromatographically. A simple method for the sepn. of the active from the inactive part of the lyophilized prepn. is presented.

B. S. Levine

BROUDE, L. M.

USSR.

The formol number in the estimation of the quality of pancreas intended for use in insulin production. L. M. Broude, E. A. Kolli, and T. S. Sakharskaya (All-[illegible] Inst. [illegible] Endocrinol., Moscow). *Biokhimiya* 20, [illegible] 18(1955). A parallelism exists between the [illegible] residual N, and amino N in the formol [illegible] of the pancreas. This makes possible the [illegible] in industry by a simple and easily accessible method. [illegible] increase in the formol no. is always accompanied by a fall in the insulin potency. In the frozen gland the formol no. and the amino-acid content remain undiminished. In acidified alc. exts. of the pancreas kept in the refrigerator total N and the formol no. also remain unchanged for [illegible] weeks. Freshly frozen pancreatic [illegible] nos. of 2 [illegible]. In deteriorated glands the formol [illegible] while the [illegible] content falls [illegible]

BROUDE, L.M.; PEKHTEREVA, S.I.; Prinimali uchastiye: SAMOYLOV, M.I.; GOLUBOVICH, K.

Effect of cortisone and testosterone on the content of asparagine, carnosine and anserine in skeletal and heart muscles. Biokhimiia 27 no.1:42-47 Ja-F 62. (MIRA 15:5)

1. Department of Biological Chemistry, 1st Medical Institute, Moscow.
(STEROID HORMONES) (MUSCLES)
(HEART--MUSCLE) (ASPARAGINE) (PEPTIDES)

PEKHTEREVA, S.I., dots.; BROUDE, L.M., prof., red.; YEGOROVA, N.S., red.; BIRKENVAL'D, G.V., tekhn. red.

[Manual on laboratory exercises in biological chemistry for students of medical schools]Rukovodstvo k prakticheskim zaniatiiam po biologicheskoi khimii dlia studentov meditsinskikh institutov. Pod red. L.M.Broude. Moskva, 1-i Mosk. med. in-t im. I.M.Sechenova. 1962. 216 p. (MIRAA 16:2)
(BIOCHEMISTRY—LABORATORY MANUALS)

BROUDE, V., kand. fiz.-matem. nauk; SOSKIN, M., kand. fiz.-matem. nauk

"Laserostation speaking". Znan. ta pratsia no.5:7-8 My '63. (MIRA 16:6)

(Lasers)

CA

Large-scale investigation of organic crystal spectra at low temperature. V. A. Broude, V. C. Melvelev, N. E. Nechaeva, A. F. Prikhot'ko, and O. P. Kharitonova. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 14, 487-92(1950). Improvements in the method are the use of metallic cryostats with glass or quartz windows, of a high-pressure Kr lamp as light source, and of the Fe-arc spectrum as a comparison. Absorption spectra in polarized light could be taken on sep. small monocrystals selectively enlarged out of a conglomerate of crystals. At liquid-N temp. the absorption bands are narrowed. More than 50 substances were investigated. The characteristic frequencies of the C_6H_6 spectrum remain in the spectra of related substances, but these show individual characteristics; for example *p*-, *o*-, and *m*-xylene have distinctly different spectra. At low temp. all the benzene derivs. can be identified better than in solns. Phenol spectra are continuous and shifted to the red. The NO_2 and NH_2 groups also strongly modify the benzene spectrum; a more-detailed structure of aniline and nitrobenzene spectra was obtained at liquid H temp. Other investigated spectra belonged to heterocyclic substances, glycine, alanine, quinones, etc. Changes in spectra are due to changes in mol. structure and to changes in lattice bonds. The study of the naphthalene spectrum led to the following conclusions: All lines and bands can be classified in series corresponding to electronic transitions, intermol. vibrations, and lattice vibrations. In the spectra of mol. crystals near to series of lines corresponding to lines in the gas phase also appear series, lines, and bands characteristic of the crystal alone; these series are strongly polarized. S. Pakswer

1951

BROUDE, V. A., MASHKEVICH, V. S., PRIKHOT'KO, A. F., PROKOPYUK, N. F., SOSKIN, M. S.

"Induced radiation in molecular crystals."

A four-level scheme for a quantum generator was discussed. It was shown that optical properties of molecular crystals provide a basis for the realization of a quantum generator.

The report presented at the 11th Conference on Luminescence (Molecular luminescence and luminescence analysis) Minsk, 10-15 Sept. 1962.

ACC NR: AP6002468 SOURCE CODE: UR/0386/65/002/011/0519/0521

AUTHOR: Broude, V. L.[44]; Kravchenko, V. I.[44]; Prokopyuk, N. F.[44]; Soskin, M. S.[44]

ORG: Physics Institute, Academy of Sciences UkrSSR,[44] Kiev (Institut fiziki Akademii nauk UkrSSR)

TITLE: Spectral composition of radiation from neodymium glass[15,44] in a laser[25,44] cavity

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 11, 1965, 519-521, and insert between p. 520 and 521

TOPIC TAGS: laser, laser optics, solid state laser, laser resonator

ABSTRACT: Laser action is reported on various lines throughout a spectral range five times as broad as the range of stimulated emission usually observed from a Nd^{3+} doped glass laser (2% Nd^{3+}). A special "dispersion" resonator developed by the author (Author certificate 164325, 1 March 1963; IN: Byulletin' izobreteniy i tovarnykh znakov, no. 15, 1963; see also Adademiya nauk SSSR, Doklady, v. 163, no. 6, 1965, p. 1342-1343) in which a prism is placed between the laser rod and the adjustable end mirror was used. In the Fabry-Perot setup, several lines appeared near 9440 cm^{-1} at the threshold for laser action. The number of lines increased with the pump power and at the peak pump power (6 times the threshold) the lines spanned the region between 9390 and 9470 cm^{-1} at intervals betwen 3 and 5 cm^{-1}. In the "dispersion" mode of operation, changes in the inclination of the mirror resulted in changes in the

L 24055-66
ACC NR: AP6002468

frequency of emission. At different inclinations of the mirror, laser action was attained on different lines in the range between 9090 and 9540 cm^{-1}. The laser used had an inhomogeneously broadened luminescence line at 1.06 μ. A glass prism with an angular dispersion of 1 sec/Å was utilized in the experiments. Laser action throughout such a wide range was attributed to the fact that the "dispersion" mode of operation is responsible for selective losses, making generation possible on lines which are not excited in the Fabry-Perot mode of operation. Orig. art. has: 2 figures. [CS]

SUB CODE: 20 / SUBM DATE: 21Oct65/ ORIG REF: 002/ OTH REF: 002/ ATD PRESS: 4178

Card 2/2

C/I

3

The nature of coloration of metal solutions in liquid ammonia. B. E. Gordon and V. L. Bronde (Acad. Sci. Ukr. S.S.R., Kiev). *Zhur. Fiz. Khim.* 24, 409-14 (1950).—When e.m.f. (greater than 10 v.) was applied to a needle cathode and a flat anode (mutual distance 1 cm.) in 0.025 *M* $NaNH_2$ soln. in NH_3, a blue streak moved from cathode toward anode at a rate (at 20°) of 0.012 cm./sec. per volt/cm. Magnetic field (e.g., of 70 gausses) shifted the streak in the direction showing that the streak was neg. Presumably, the streak consisted of "polarons" (electrons immobilized by polarization of the medium) (cf. Pekar, C.A. 41, 335c). A 0.1-mm. layer next to the anode was impenetrable for the blue liquid. When current was turned off, the liquid gradually lost its coloration; the apparent energy of activation of this process (between 20° and −40°) was 0.1 e.v. J. J. Bikerman

S.A.

Sect. A

Optics · Spectra

535.343 : 535.372 : 548.7

[illegible]. Electron and vibration levels of the benzene molecule and crystal. V. L. Broude, D. S. Medvedev and A. F. Prikhot'ko. Zh. Eksper. Teor. Fiz., 21, 665-72 (No. 6, 1951) In Russian.

A comparison of the absorption and fluorescence spectra of a crystal with vapour spectra, and with absorption spectra of benzene in alcohol and dioxane. In the crystal were found molecular states corresponding to the gas-phase ones, as well as pure crystalline states, giving a double series of strongly polarized lines. A correlation with the weakly polarized series leads to information about the direction of scattering of light vibration in the crystal relative to the crystal axes.

J. Jacobs

USSR/Physics - Spectrography, Crystals May 52

"Investigation of Various Modification of Hexamethylbenzene in Polarized Light," V. L. Broude, Phys Inst, Acad Sci Ukrainian SSR

"Zhur Eksper i Teoret Fiz" Vol XXII, No 5, pp 600-604

Investigated crystals of hexamethylbenzene by means of microprojector in a temp range of -190° to +160°C. Observed phase transitions at -160° and +110°C, seen in the change of double refraction. Research of the effect of phase transition on the absorption spectrum of a monocrystal in polarized light revealed

217T93

sharp dependence of the spectrum of the same substance on its cryst structure. Indebted to A. F. Prikhot'ko and A. S. Davydov. Received 14 Jun 51.

217T93

BROUDE, V.L.

USSR/Physics - Spectrography, Crystals May 52

"Absorption Spectra of Benzene Monocrystals in Polarized Light," V. L. Broude, A. F. Prikhot'ko, Phys Inst, Sci Ukrainian SSR

"Zhur Eksper i Teoret Fiz" Vol XXII, No 5, pp 605-609

Investigates light absorption spectra in benzene crystals in the case of oscillation of the vector of light parallel to 3 symmetry axes of the crystal. Observes series of weakly polarized absorption bands in all cases. Series of sharply polarized bands are

21794

seen only in spectra in a and c directions and are absent in b direction. From comparison of obtained results with theoretical computation, determines the symmetry of forbidden transition in benzene as $A_{1g} \rightarrow B_{2u}$. Indebted to A. S. Davydov. Received 14 Jun 51.

21794

BROUDE, V.L.

BROUDE, V. L.

0 2

Phase transitions in different benzene homologs and a spectral investigation of the modifications. V. L. Broude. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 17, 699–707(1953); cf. *C.A.* 46, 8958e.—The weak and the strong polarized component of the spectrum should be sepd. to allow the sepn. of the spectra into "mol." and "cryst." bands. The bands of benzene, a low-temp. modification and a high-temp. modification of hexamethylbenzene, and hexaethylbenzene are tabulated and discussed. By means of spectroscopic analysis of the 0-0 transition in spectra taken at low- (liquid N) and high-temp., phase transitions were discovered in the following substances: toluene (temp. of transition near m.p. −95°), ethylbenzene (same, −93°), hexylbenzene (same, −67°), *p*-ethyltoluene (−98°), *m*-xylene (near −53°), hexamethylbenzene (−165°) *p*-dichlorobenzene (32°), *p*-nitrosodimethylaniline (60°), azoxybenzene (20°), and chloropicrin (70°). Transitions were characterized by shifts of bands and appearance of strongly polarized bands. The orientation of the crystal during spectroscopy is important.

S. Pakswer

AF 11-10-54

BROWDE, V. L.

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
Organic Chemistry

The possibility of determination of the number and position of side chains in benzene homologs by the spectral method. V. L. Broude, A. L. Liberman, and A. . Prikhot'ko. Doklady Akad. Nauk [illegible]

It was shown that within the limits of [illegible] alkylated benzenes can be identified [illegible]. The spectra of some of the products [illegible] photographically. The following [illegible] electronic frequencies were observed at [illegible] the state of the specimen given): MePh, cryst. low temp. form, 37,907 cm^{-1}; EtPh, cryst. high temp. form, 37,237; PrPh, amorphous, 37,231, cumene, amorphous, 37,349; o-C_6H_{13}Ph, cryst. high temp. form, 37,228; p-xylene, cryst., 36,395; p-EtC_6H_4Me, cryst. high-temp. form, 36,390; p-cymene, cryst. 36,667; o-xylene, cryst. high temp. form, 36,878; o-EtC_6H_4Me, cryst. [illegible] tetrahydronaphthalene, cryst., 36,370; m-xylene, cryst. high temp. form, 36,778. In a given series of a type the spectra are similar and chain-branching does not alter the general type of the spectrum. G. M. Kosolapoff

BR UDE, V. L.

"Light Absorption of Compound of the Benzene Homologous Series." Cand Phys-Math Sci, Inst of Physics, Acad Sci Ukrainian SSR, Kiev, 1954. (RZHKhim, No 6, Mar 55)

So: Sum. No 670, 29 Sept 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

BROUDE, V. L.

USSR/Physical Chemistry - Molecule, Chemical Bond, B-4

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 91

Author: Broude, V. L., and Prikhot'ko, A. F.

Institution: None

Title: On the Paper by McLure and Schnepp

Original Periodical: Optika i spektroskopiya, 1956, Vol 1, No 1, 102-103

Abstract: The causes for the divergences between the data of McLure and Schnepp (Referat Zhur - Khimiya, 1956, 60739) and A. F. Prikhotko (Zh. eks-perim. i teor. fiziki, 1949, Vol 19, 383) concerning the location of the absorption bands for a monocrystal of naphthalene. The authors have conducted analogous investigations on crystals of naphthalene and its deuterium-substituted derivatives and have found a substantial difference in the spectra of freely suspended crystals similar to those used by Prikhot'ko from the spectra of crystals obtained by melting 2 quartz plates. The latter spectra show considerably larger bands with a certain shift relative to the spectrum of free crystals

Card 1/2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 91

Abstract: in the IR region. Microphotographs of the spectrum of such a crystal are in full agreement with those published in the paper by McLure. The authors ascribe the changes in the spectrum to the great stresses produced during the cooling of the crystals by the difference in the coefficients of expansion of the naphthalene ($2 \cdot 10^{-4}$ deg^{-1}) and quartz ($2 \cdot 10^{-7}$ deg^{-1}). The interpretation of the electronic spectra of naphthalene must be carried out according to the spectrum of a free crystal or by making allowances for the distortions in the spectrum due to the action of exterior forces described above.

BOROVIK, E.S.; BROUDE, V.L.

Conference on low temperature physics. Ukr.fiz.zhur. 1 no.1: 106-108 '56. (MLRA 9:11)
(Low temperature research)

BROUDE, V. L.

Category: USSR / Physical Chemistry - Crystals

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29723

Author : Broude V. L., Prikhot'ko A.F.
Inst : not given
Title : Investigation of Structural Changes in Crystals on the Basis of Their Spectra at Low Temperatures

Orig Pub: Kristallografiya, 1956, 1, No 3, 334-341

Abstract: A study was made, in polarized light and at temperatures of 77° and 20°K, of the absorption spectra of a number of molecular crystals of aromatic compounds (essentially hydrocarbons of benzene and naphthalene series). It is shown that the absorption spectra, the same as many other properties of the crystal (refraction index, coefficient of expansion, etc) fully depict lattice anisotropy. The changes observed in exiton bands of the crystal spectrum make it possible to identify crystalline modifications, and in some instances permit to evaluate lattice symmetry. In the spectra are also reflected the in-

Card : 1/2

B-5

Category: USSR / Physical Chemistry - Crystals

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29723

clination of the molecule in relation to the crystallographical axes, the form of distribution of admixture within the crystal, photochemical transformations which take place in the specimen, etc. Investigation of crystals of different thickness, on a quartz base layer, has shown that the spectra are also affected by the effects of external influences. The paper demonstrates that low-temperature spectral investigation of crystals can provide a valuable addition to roentgenographic analyses. It is noted that correct evaluation of the effect of crystalline structure upon the spectrum can be had only in those instances when the investigations are carried out in polarized light, with polarization along the axes of cauchy ellipsoid.

Card : 2/2

-25-

BROUDE, V.L.

B-4

USSR/ Physical Chemistry - Molecule. Chemical bond

Abs Jour : Referat Zhur - Khimiya, No 4, 1957 10851

Author : Broude V.L.

Title : Absorption Spectra of Benzene Homologues. 2. Absorption of Light by Monoalkylbenzenes

Orig Pub : Optika i spektroskopiya, 1956, 1, No 3, 387-392

Abstract : At -190° were obtained absorption spectra of crystals of two modifications of toluene, ethylbenzene and n-hexylbenzene in polarized light and also absorption spectra of amorphous samples of n-propylbenzene, cumene and n-butylbenzene. Differences in alkyl groups have little effect on the spectrum. [illegible] allowed purely electronic transition, the other an elec- [illegible] purely electronic

BABENKO, V.P.; BROUDO, V.L.; MEDVEDEV, V.S.

Cryostats used in optical measurements. Prib.i tekh.eksp.no.3:99-100 N-D '56. (MLRA 10:2)

1. Institut fiziki AN USSR.
(Cryostat) (Optical measurements)

BROUDE, V.L

24(7) p3 PHASE I BOOK EXPLOITATION SOV/1365

L'vov. Universytet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii. t. 1: Molekulyarnaya spektroskopiya (Papers of the 10th All-Union Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy) [L'vov] Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies printed. (Series: Its: Fizychnyy zbirnyk, vyp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii. Ed.: Gazer, S.L.; Tech. Ed.: Saranyuk, T.V.; Editorial Board: Landsberg, G.S., Academician (Resp. Ed., Deceased), Neporent, B.S., Doctor of Physical and Mathematical Sciences, Fabelinskiy, I.L., Doctor of Physical and Mathematical Sciences, Fabrikant, V.A., Doctor of Physical and Mathematical Sciences, Kornitskiy, V.G., Candidate of Technical Sciences, Rayskiy, S.M., Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K., Candidate of Physical and Mathematical Sciences, Miliyanchuk, V.S., Candidate of Physical and Mathematical Sciences, and Glauberman, A. Ye., Candidate of Physical and Mathematical Sciences.

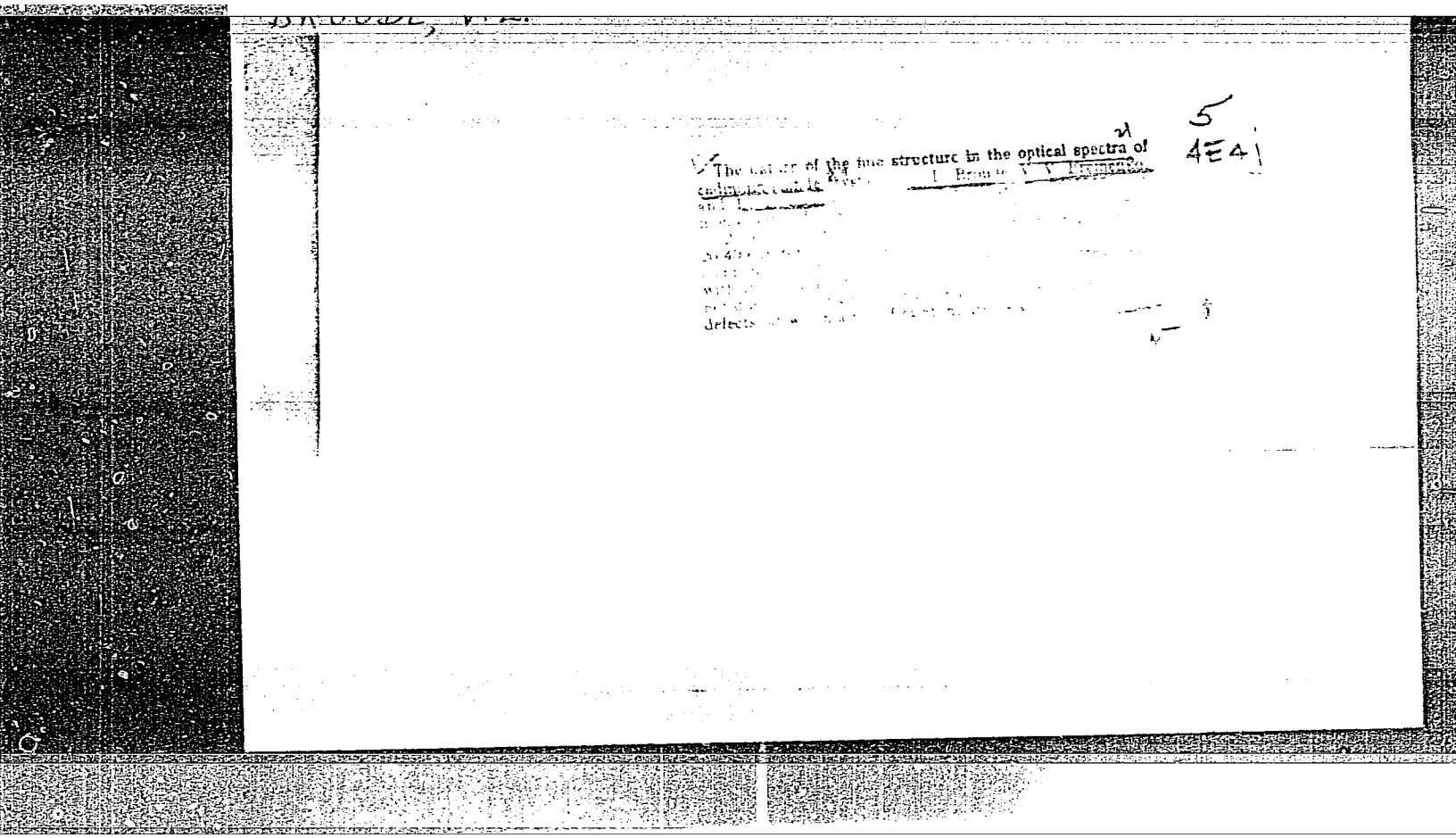
Card 1/30

Papers of the 10th All-Union (Cont.) SOV/1365

PURPOSE: This collection of articles is intended for scientists working in the field of spectroscopy and for engineers and laboratory analysts who use spectroscopic methods in their work.

COVERAGE: This collection of articles is concerned with theoretical, experimental, and technical problems in molecular spectroscopy. The application of molecular spectroscopy to various fields of theoretical research is described in articles covering chemical structure, kinetics, catalysis, theory of the chemical bonding, properties of crystals, effect of radiation on substance, etc. Good coverage is also given to the use of spectroscopy in organic and inorganic technology including the study of petrochemicals, polymers, glass, phosphate, boron compounds, etc. Each article is followed by references. The text includes tables and figures.

TABLE OF CONTENTS:



The nature of the fine structure in the optical spectra of

AUTHORS: Broude, V.L., Medvedev, V.S. and Prikhot'ko, A.F. 51-3-6/24

TITLE: Spectral investigation of benzene crystals at 20.4°K. (Spektral'nye issledovaniya kristallov benzola pri 20.4°K).

PERIODICAL: "Optika i Spektroskopiya" (Optics and Spectroscopy), 1957, Vol.2, No.3, pp.317-322 (U.S.S.R.)

ABSTRACT: The present authors studied earlier (Zh. Eksper.Teor. Fiz., Vol.21, p.665, 1951 and Vol.22, p.605, 1952) benzene monocrystals in polarized light at the liquid nitrogen temperature. They found then that a purely electronic transition forbidden in the benzene molecule occurred in benzene crystals as a resolved doublet with its components polarized along the a and c axes of the crystals. This doublet was shown by Davydov (Zh. Eksper. Teor. Fiz., Vol.21, p.671, 1951) to be due to formation of free excitons in the crystal. This paper deals with absorption spectra of benzene monocrystals at the liquid hydrogen temperature. The apparatus included a spectrograph with 2.9 Å/mm dispersion at about 2600 Å. An Iceland spar polarizer was used with a special diaphragm to make possible recording of two spectral components simultaneously. Liquid benzene was poured into a special cell and held in a cryostat which permitted rotation of the cell. New samples could be introduced during work.

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Spectral investigation of benzene crystals at 20.4°K. (Cont.) 51-3-6/24

Preliminary cooling was carried out with liquid nitrogen and in the final cooling only 30-40 cm^3 of liquid hydrogen were lost per hour. The absorption spectrum of benzene monocrystals at 20.4 K consists of more than 100 narrow (2-4 cm^{-1}) bands. The spectrum begins at 37800 cm^{-1} and the plates in the paper show bands up to about 41000 cm^{-1}. The spectrum of the benzene crystal consists of two basic series: the K series strongly polarized bands which are related to the fully symmetric vibrations of the benezene molecule and the M series, more intense, whose beginning occurs when a purely electronic transition is combined with vibrations of E_{2g} symmetry (523 cm^{-1}). The K series occurs in crystals only and is called "crystalline", while the M series occurs also in gases and hence is called "molecular". The K series consists of six groups each of which contains 3 or more bands. The M series consists of four groups each of which has 3 main weakly polarized components and less intense satellites. There are also further bands which are strongly polarized but of low intensity, denoted by K^I ... K^{VII} whose components are very close together (2 to 10 cm^{-1}). Interpretation of the origin of these bands requires further work.

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Spectral investigation of benzene crystals at 20.4 K (Cont.)

51-3-6/24

There are 2 line figures, 1 plate with spectra and 11 references, 6 of which are Slavic.

SUBMITTED: August 23, 1956.

ASSOCIATION: Institute of Physics, A.C. of Ukrainian SSR, Kiev. (Institut Fiziki Akademii Nauk USSR g. Kiev).

AVAILABLE:

Card 3/3

AUTHORS: Broude, V.L., Pakhomova, O.S. and Prikhot'ko, A.F. 51-3-7/24

TITLE: Effect of deformations on the spectra of crystals. (Vliyaniye deformatsiy na spektry kristallov).

PERIODICAL: "Optika i Spektroskopiya" (Optics and Spectroscopy), 1957, Vol.2, No.3, pp.323-329 (U.S.S.R.)

ABSTRACT: Deals with the effect of planar tension on the absorption spectra of benzene, naphthalene, anthracene and CdS at the liquid hydrogen temperature (20.4 K). The sample were thin films held in a crystal holder. The assembly had a quartz lens for photographing spectra of various parts of the sample. The whole assembly was rotatable and was placed in a cryostat with quartz windows. The spectra were obtained with a quartz spectrograph whose dispersion was 2.9 Å/mm at about 2600 Å. To study the CdS spectra glass optical parts were used. An Iceland spar polarizer made it possible to obtain simultaneously spectra for two mutually perpendicular directions of the electric vector vibrations. A krypton lamp was used as a source and the iron spectrum for calibration. Naphthalene crystalline films rigidly fixed between two quartz plates behaved differently for different thicknesses of the film. Above 2-3 μ thickness these films cracked on cooling to 20.4 K. Thinner films exhibited

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Effect of deformations on the spectra of crystals. (Cont.) 51-3-7/24

spectral displacement towards ultraviolet when compared with freely supported samples. This spectral displacement was accompanied by widening and weakening of bands and strong polarization of the originally weakly polarized "molecular" M bands (see the preceding paper). If the films were very thin (0.01 μ) only the spectral displacement occurred. Similar behaviour with strongly developed polarization effects was observed for anthracene films. Benzene films also behaved essentially in the same way as naphthalene but both the spectral displacement and polarization effects occurred only in thin (0.2 - 0.5 μ) films. In CdS displacement and intensity redistribution of absorption lines occurred for crystals under tension. The explanation of these effects lies in the large difference of linear thermal expansion coefficients of the quartz holders (2×10^{-7} deg^{-1}) and of the organic crystals ($1-2 \times 10^{-4}$ deg^{-1}). Cooling to 20.4 K from room temperature produced an extension of 5% in the rigidly held crystal films. In thicker films the extension is non-uniform across the sample thickness being largest at the planes of contact with the quartz plates. This non-uniformity which produces lattice distortions, accounts for the displacement, weakening and widening of

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Effect of deformations on the spectra of crystals. (Cont.)

spectra of the thicker films. The thinnest films are thin enough to be extended practically uniformly throughout their volume; in this case only the spectral displacement occurs. Polarization of the "molecular" M bands (whose excitation is normally localized in the molecules) is due to formation of free excitons in non-uniformly stressed samples. The actual mechanism is not clear and needs further study. The peculiarities of benzene are attributed to its transitions to a doubly degenerate level (absorption bands). There are 2 plates with spectra of naphthalene and anthracene, 2 line figures and 12 references, 11 of which are Slavic.

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ASSOCIATION: Institute of Physics, Ac.Sc. of the Ukrainian SSR,Kiev. (Institut Fiziki Akademii Nauk USSR g. Kiev).

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51-4-8/25

AUTHOR: Broude, V.L.

TITLE: The absorption spectra of benzene homologues. III. Absorption of light by dialkylbenzenes. (Spektry pogloshcheniya gomologov benzola. III. Pogloshcheniye sveta dialkilbenzolami).

PERIODICAL: "Optika i Spektroskopiya" (Optics and Spectroscopy) 1957, Vol.2, No.4, pp.454-461 (U.S.S.R.)

ABSTRACT: For parts I and II see Zh. Eksper. Teor. Fiz., Vol.22, 600, 1952 and Optika i Spektroskopiya, Vol.1, 387, 1956. The absorption spectra of benzene homologues in the near ultraviolet (3000-2000 Å) are due to excitation of the π-electron cloud of the benzene ring deformed by alkyl radicals. Study of these spectra yields additional information on the electron states of the benzene molecule and general laws on absorption by aromatic compounds. Using the experimental technique described earlier (Optika i Spektroskopiya, Vol.1, 387, 1956 and Zavodskaya Laboratoriya, Vol.17, 1951) the absorption spectra of crystals of 7 dialkylbenzenes were obtained in polarized light at the liquid-nitrogen temperature. The seven compounds were: o-xylene, m-xylene, o-ethyltoluene, p-xylene, p-ethyltoluene, p-cymene (p-isopropyltoluene) and p-diternary butylbenzene. Their crystallization and preparation is described. Majority of these compounds were prepared in the A.L.Liberman Laboratory, Organic Chemistry Institute,

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The absorption spectra of benzene homologues. III. Absorption of light by dialkylbenzenes. (Cont.)

Academy of Sciences of the U.S.S.R. The spectra, ranging from 36000 to over 40 000 cm^{-1}, are given in six half-tone plates together with their interpretations. From the obtained results the author makes the following conclusions. In dialkylbenzenes, as in monalkylbenzenes (see Pt.II), excitation of two mutually perpendicular oscillators is possible. These oscillators correspond one to a purely electronic transition and the other to a simultaneous occurrence of the former and a non-fully symmetric vibration (B_1 in the ortho- and para-substitutes and B_{1g} in the para-substitutes). In both cases the transitions appear as beginnings of independent series of fully symmetric vibrations. In addition to the above the studied spectra contain a series which begins with the 0-0 transition. The author points out that similar spectra occur in other benzene hydrocarbons and are due to field splitting of the benzene molecule vibration E_{2g} (520 cm^{-1}).

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The absorption spectra of benzene homologues. III. Absorption of light by dialkylbenzenes. (Cont.)

Other aromatic compounds with planar structure may also possess absorbing oscillators perpendicular to the 0-0 transition oscillators. This effect should be looked for in polarized light and at low temperatures. There are six figures (half-tone plates) and eleven references, five of which are Slavic.

ASSOCIATION: Institute of Physics. Academy of Sciences of the Ukrainian S.S.R., Kiev, (Institut Fiziki AN USSR, Kiev).

SUBMITTED: August 23, 1956.
AVAILABLE: Library of Congress

20-114-3-19/60

AUTHORS: Broude, V. L., Yeremenko, V. V., Rashba, E. I.

TITLE: The Absorption of Light by CdS-Crystals (Pogloshcheniye sveta kristallami CdS)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 3, pp 520-523 (USSR)

ABSTRACT: The authors investigated the spectra of the monocrystals of the hexagonal modification of CdS at 20,4°K in polarized light. The samples were produced by evaporation of Cd and S in an argon-atmosphere, by evaporation of Cd in a $H_2S + H_2$-atmosphere and by evaporation of CdS (recrystallization). Samples with different boundaries and surface finish were investigated and the thickness of the samples varied between 1 and 100 . The spectra were investigated by a polarization-microprojector. Two components of the spectrum which correspond to the polarization of the light vector along the hexagonal axis and vertical to it were simultaneously fixed on the photo-plate by the use of a crystal or Iceland spar. The scheme of the absorption spectrum of the CdS-crystal in polarized light is illustrated by a diagram. The spectrum contains 10 rather narrow bands (in the interval 20400 - 20600 cm^{-1}) and some

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The Absorption of Light by CdS-Crystals

wider bands over a continuous background. In the short-wave range at about 21100 cm^{-1} the continuous absorption begins. Striking is above all the weak polarization of the bands Nr 9 and Nr 10 which is distinctly to be noticed in both components of the spectrum. These two bands can only be connected with the absorption by the atoms of the layer near to the surface or with asymmetric defects. The second peculiarity is also important: The intensities of the bands from Nr 1 to Nr 10 as well as the polarization and the position of these bands in the spectrum can be different not only in different samples but also in different ranges of one and the same sample. Details of the behavior of the different bands are given. The luminescence spectra of CdS-monocrystals at a temperature of 20,4°K were also investigated; in this connection a green and also a blue luminescence were observed. The bands of this luminescence are probably in no connection with the exiton-states, but with electron-transitions near the defects. There are 1 figure and 7 references, 4 of which are Slavic.

ASSOCIATION: Institute for Physics AN Ukrainian SSR (Institut fiziki Akademii nauk USSR)

The Absorption of Light by CdS-Crystals

PRESENTED: January 7, 1957, by G. S. Landsberg, Member of the Academy (Deceased)

SUBMITTED: January 7, 1957

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BROUDE, V. L.

20-6-19/42

AUTHORS: Bragin, O. V., Broude, V. L., Zotova, S. V., Liberman, A. L. Pakhomova, O. S., and Pryanishnikova, M. A.

TITLE: Spectral Method of Determination of the Number and Position of Side Chains in the Molecules of Benzene Homologues (K voprosu o spektral'nom metode ustanovleniya chisla i polozheniya bokovykh tsepey v molekulakh gomologov benzola)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 6, pp. 961 - 964 (USSR)

ABSTRACT: In an earlier work the second author and the fourth one have shown that the ultraviolet absorption spectra of crystals of benzene homologues at 77°K (= temperature of liquid nitrogen) may be used for the purpose mentioned in the title. The result may be obtained quickly and by a small quantity of substance (some hundreth grams). These spectra consist of series of narrow strips which are, in compounds with the same position of the side chains, of the same type, independent of the length and the ramification of these chains. If the spectra of these compounds which have a similar substitution type within the molecules are put together, such as the first absorption strips (corresponding to the pure-electronic transition) lie together, also the following will do the same. Therewith also the relative strip-intensities are reproduced. This phenomenon was proved on a great number of examples of the monoalkylbenzene-order,

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Spectral Method of Determination of the Number and Position of Side Chains in the Molecules of Benzene Homologues

as well as for some simplest o- and p-dialkylbenzenes. In the present work further informations on the affirmation of the regularity mentioned are quoted. The physical characters of the hydrocarbons investigated are concentrated in table 1. It has been pointed out that the same spectrum type with the growing side chain length will be preserved. (1, 2, 4-trialkylbenzene - figure 1 A). The correspondence of the spectra of p-di-isopropylbenzene and p-xylene confirms the fact that the state branched out of both chains does not influence the position of the absorption bands. This analogy also is retained for the case that a double-binding, which is not conjugated with the benzene nucleus, is introduced into a side chain. (Comparison of ethyl- and propyl-mesitylenes with allyl-mesitylenes - figure 1 B). Quite another picture will be at an immediate conjugation of the double-binding with the benzene nucleus. So, the absorption spectrum of the 2-methyl--phenylpropene-1 also is interrupted in the temperature of the nitrogen. Here the absorption intensity is much higher, than in the case of all the other investigated substances. In spite of a same symmetry of the spectra of alkyl- and alkylene-mesitylenes (figure 1 B) and of monoalkylbenzenes (figure 1 G) an essentially dif-